U.S. Army Materiel Command

Monthly Lean Update

18 Dec 03

Briefer:
G-3 Lean Deployment Team

ESSENTIAL IN PEACE, INDISPENSABLE IN WAR

Agenda

- ✓ **Program Update – *Corpus Christi Army Depot***
- ✓ **Materiel Release**
- ✓ **National Maintenance Workload**
- ✓ **Status of HQAMC initiatives**
- ✓ **Unit Funded Cost/Lean Six Sigma**
- ✓ **Way ahead…**

Corpus Christi Army Depot
Lean Performance Review

CCAD Lean Strategy

- **UH60 A to A Recap Aircraft Program**
  - ✓ **Goal: Reduce Turn Around Time (TAT) by 54%**
    - **216 calendar day (cd) TAT for Feb 04 aircraft induction**
    - **150cd TAT for Mar 05 aircraft**

- **T700 Engine Program**
  - ✓ **Goal: Reduce Man-hours by 30**
    - **Build on GE Partnership and Six Sigma Success**
    - **Six Sigma/Lean Integration**

CCAD Total T700 Assets Produced Through Nov 2003

- **Path Ahead**

19% Increase from Nov 2002 to Nov 2003!

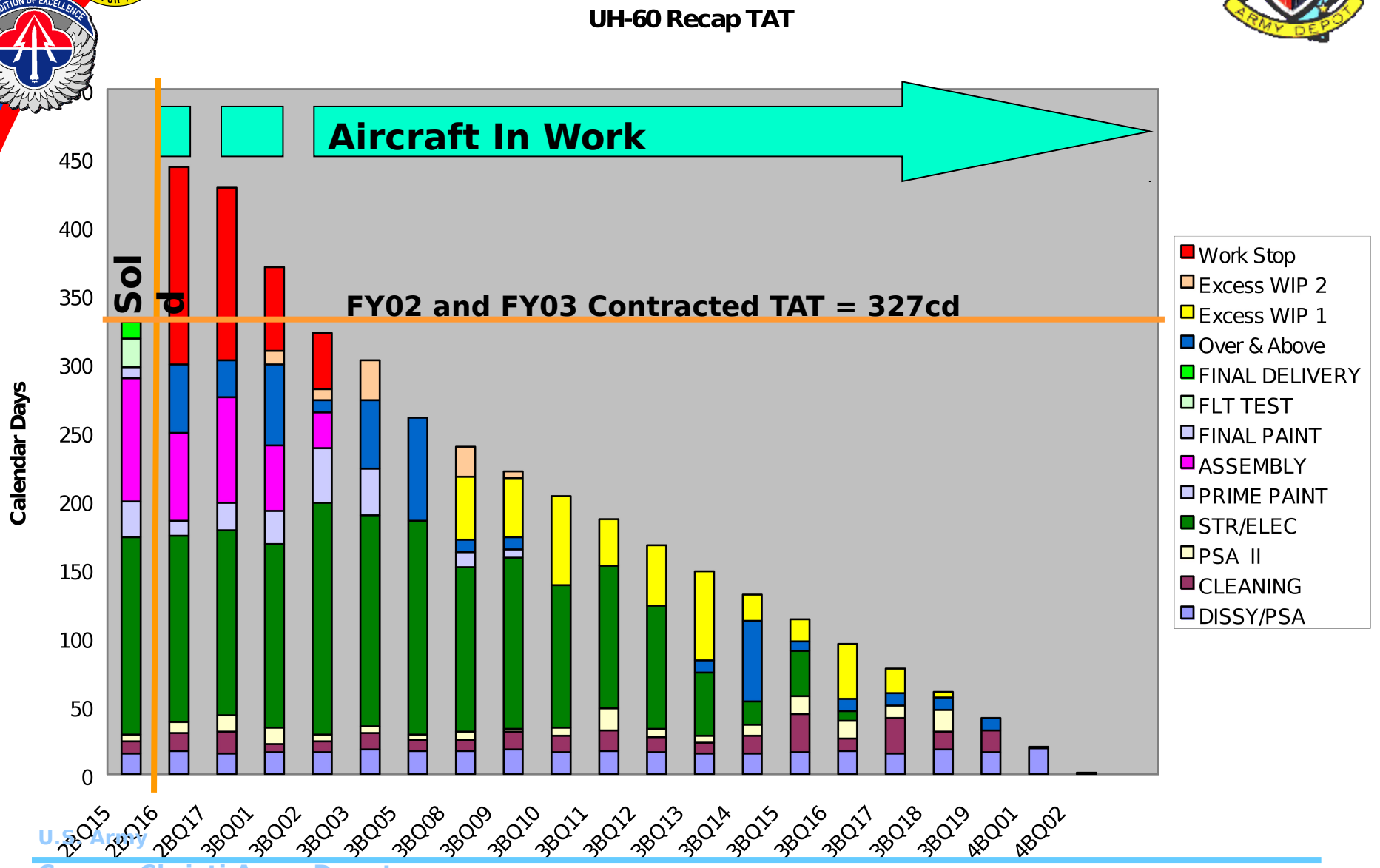
eaning UH60 A to A Recap Aircraft Program

Program Goal: Reduce TAT by 54%, from 327cd to 150cd TAT

- **Lean 1st Pass Completed on Major Aircraft Phases**
  - ✓ **13 Value Stream Analyses (VSA)**
  - ✓ **1 Production, Preparation, Process (3P)**
  - ✓ **43 Rapid Improvement Events (RIE)**
- **4 personnel redeployed**
- **9,700 square feet of internal floor space re-utilized**
- **12% of CCAD's FY04 Projected Revenue**

Value Stream Map for Pre-Induction Phase

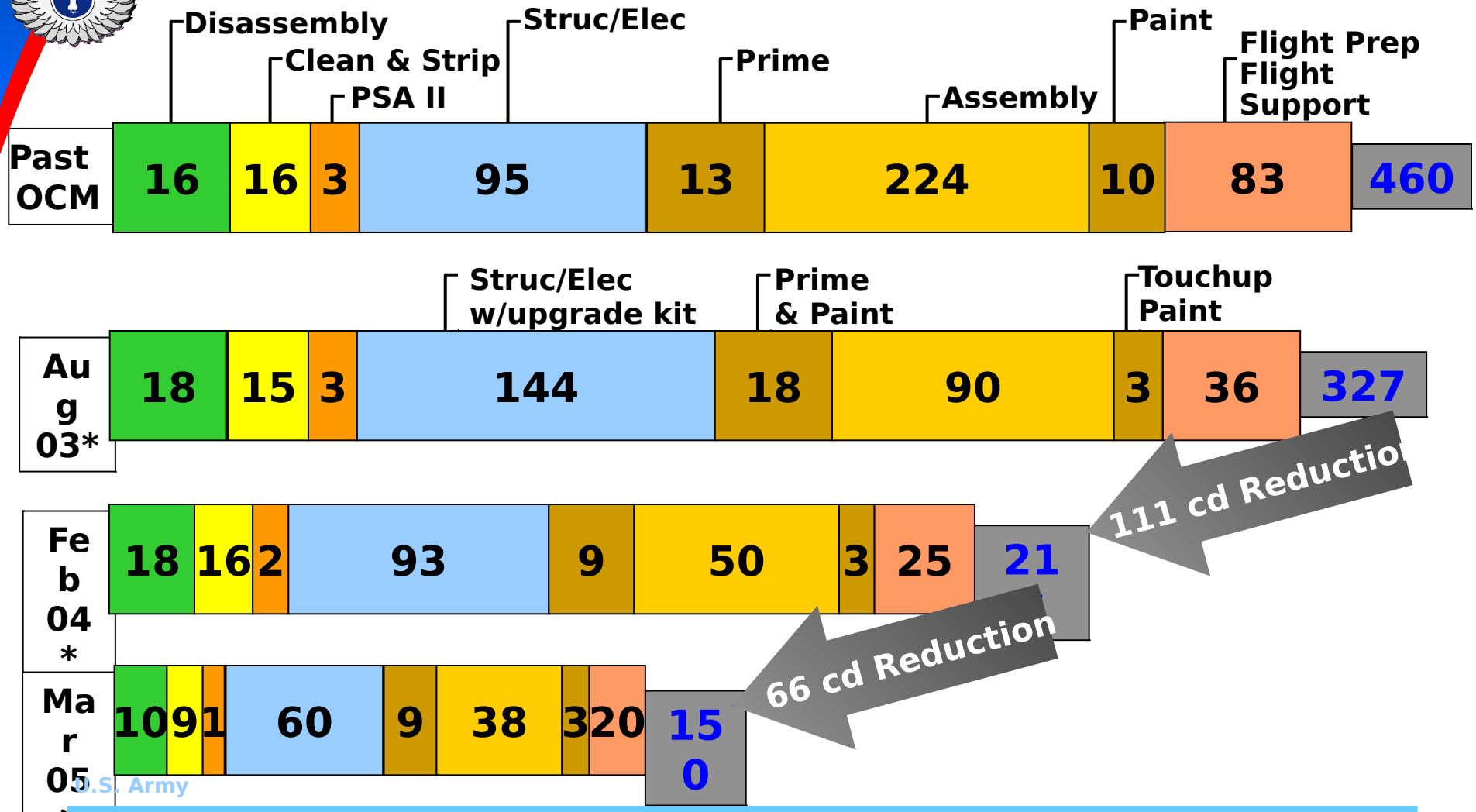
UH60 A to A Recap Program



Where We Need To Be

projected as of Dec 03

in calendar days (cd)

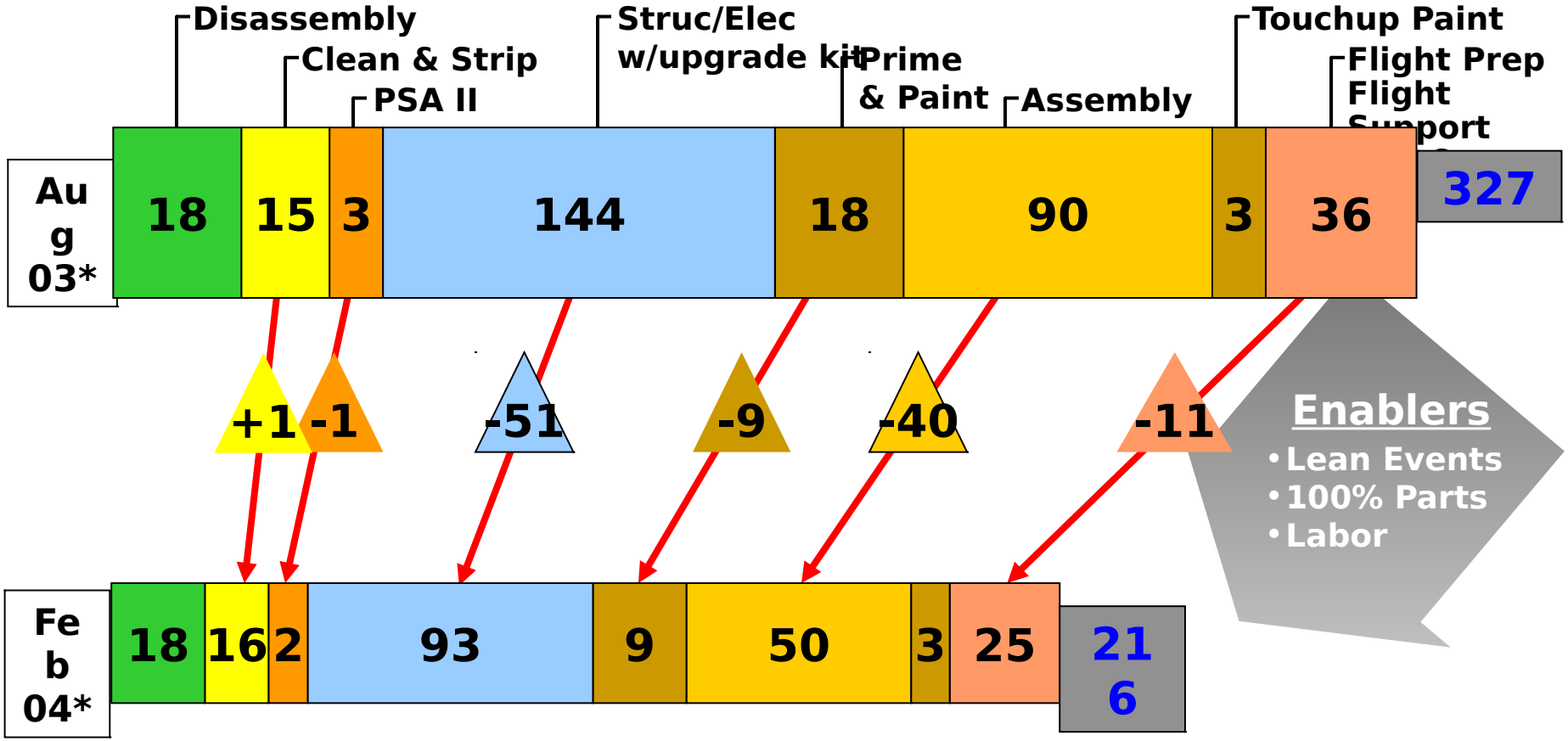


*Dates of Aircraft Inductions

Path to 216cd

projected as of Dec 03

in calendar days (cd)

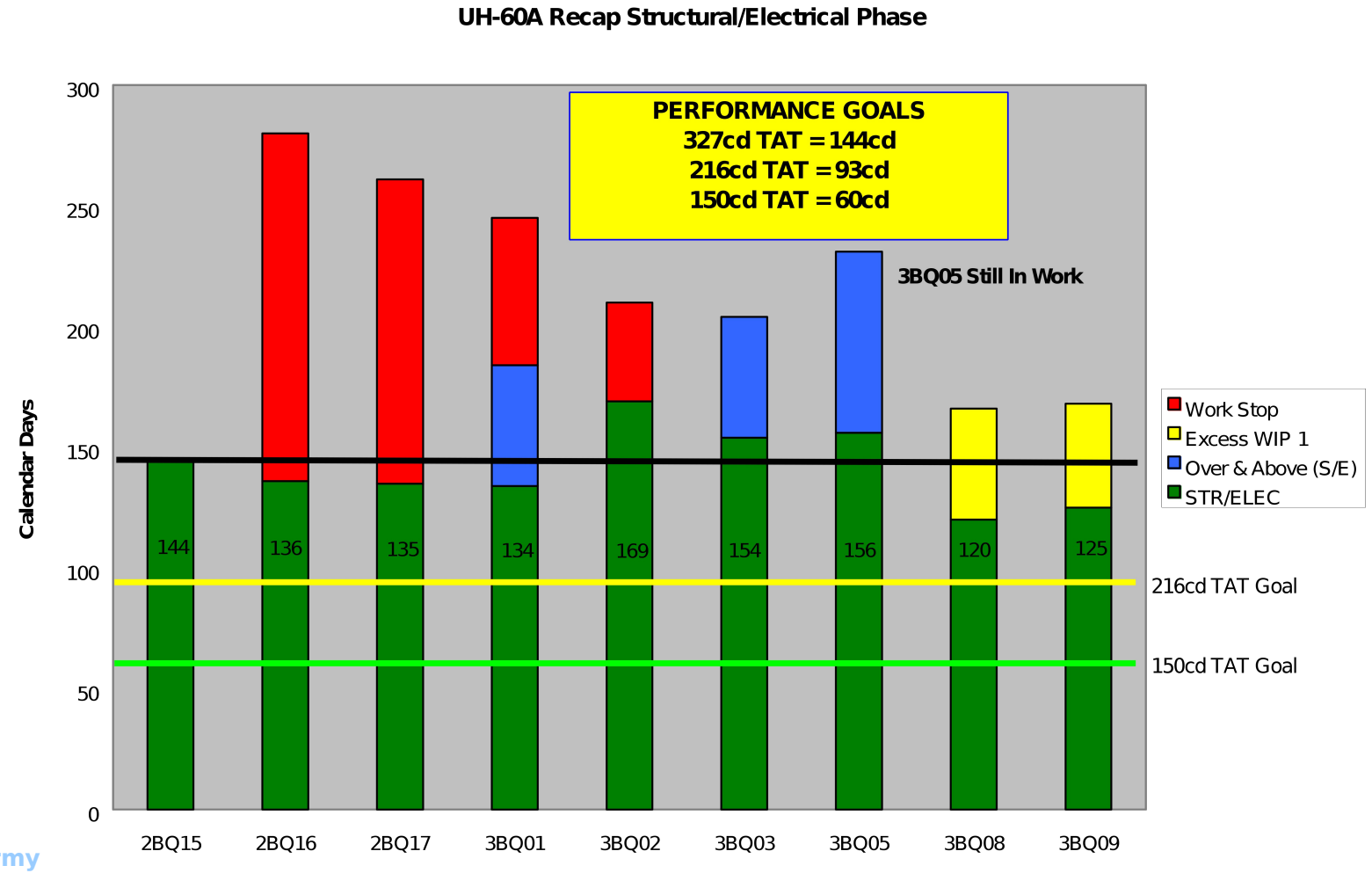


Path to 216cd

-51

Structures / Electrical Phase

S/E Phase TAT Goals: 144cd to 93cd, then to 60cd



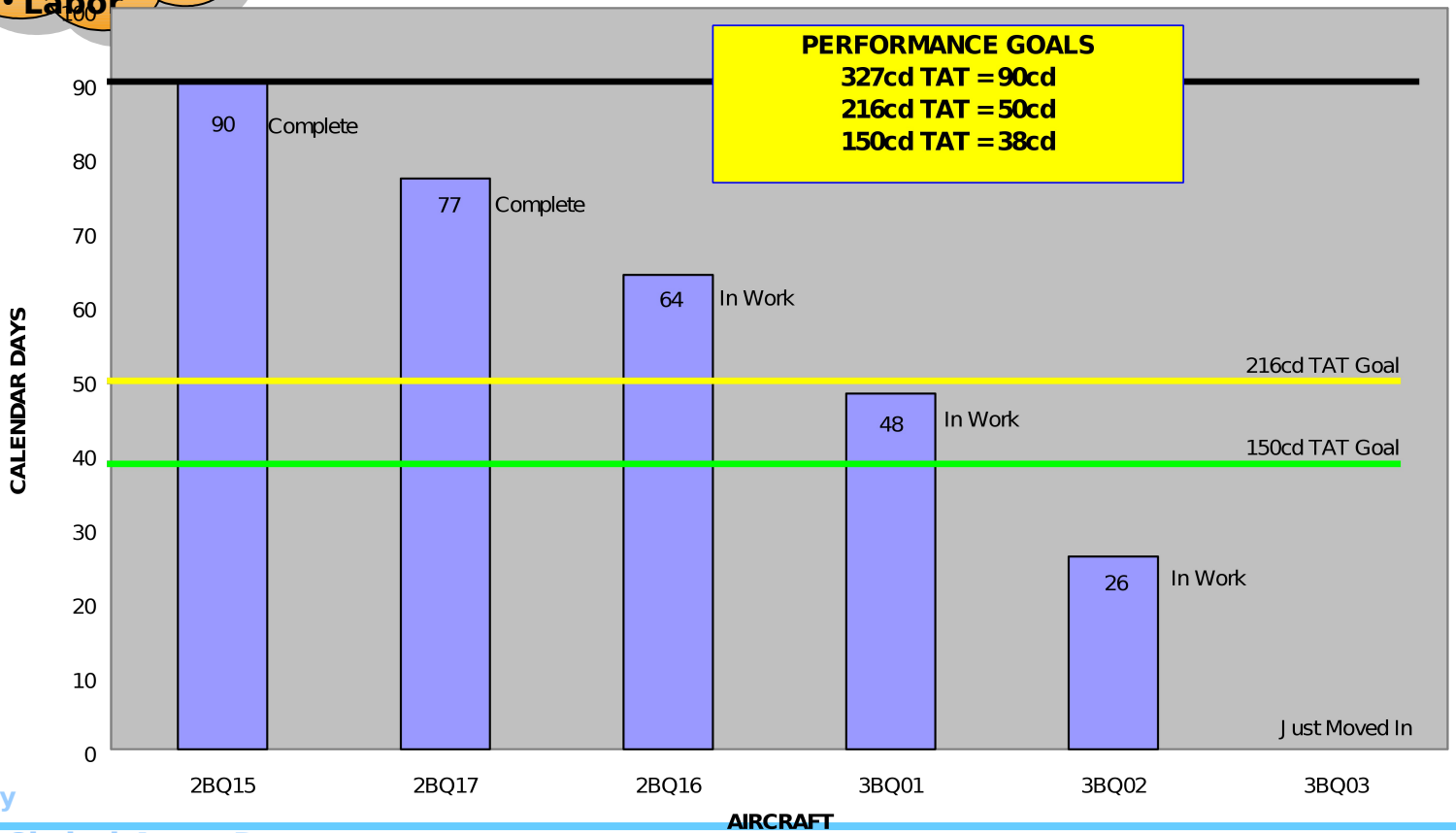
Path to 216cd -40

Assembly Phase

Assembly Phase TAT Goals: 90cd to 50cd, then to 38cd

Enablers
- 100% Parts
- Labor

UH-60 RECAP ASSEMBLY PERFORMANCE



216cd
Critical Enablers Status

Parts Supply
Responsibility: CCAD + AMCOM + Sikorsky

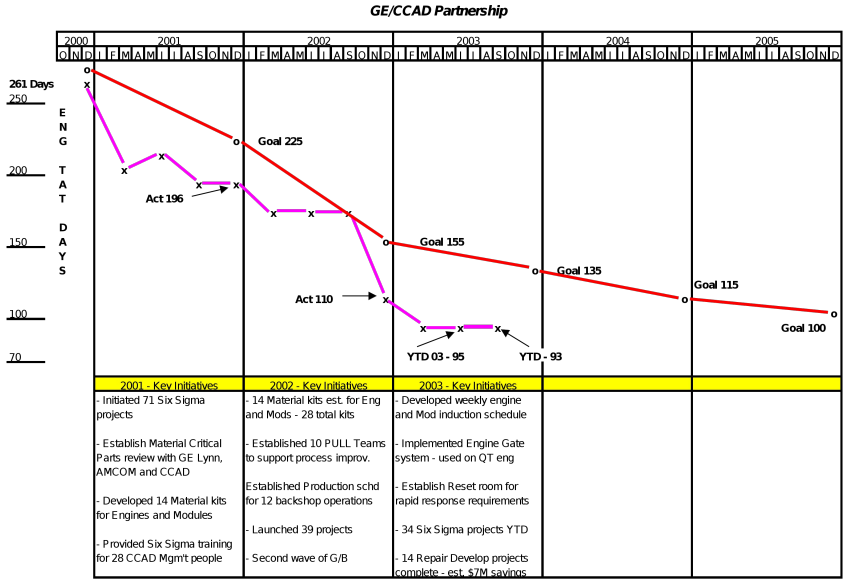
Goal: 100% Parts Availability at Required Time

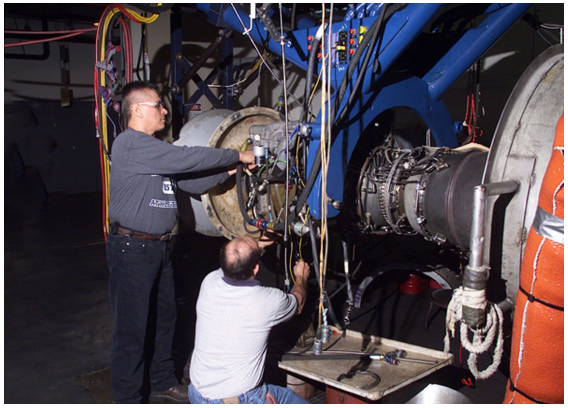
- **Aug 03, Awarded Airframe Modification of Partnership Contract**
- **Oct 03, Initial Provisioning Conference / Parts Summit**
- **Sikorsky Materiel "Integrator" Responsibilities**
  - ✓ **Remaining 18 FY02 and FY03 Aircraft**
- **Sikorsky Material "Provider" Responsibilities**
  - ✓ **Starts with first FY04 Aircraft**
  - ✓ **Completed Gap Analysis for 1443 Parts on Contract**
    - **3 Parts still under review**

Leaning UH60 A to A Recap Aircraft Program

T700 Engine Program

GE Partnership and Six Sigma Success


GE/CCAD Partnership
2000
2001
2002
2003
2004
2005
O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
261 Days
250
200
150
100
70
ENG TAT DAYS
Goal 225
Act 196
Goal 155
Act 110
Goal 135
Goal 115
Goal 100
YTD 03 - 95
YTD - 93
2001 - Key Initiatives
- Initiated 71 Six Sigma projects
- Establish Material Critical Parts review with GE Lynn, AMCOM and CCAD
- Developed 14 Material kits for Engines and Modules
- Provided Six Sigma training for 28 CCAD Mgm't people
2002 - Key Initiatives
- 14 Material kits est. for Eng and Mods - 28 total kits
- Established 10 PULL Teams to support process improv.
Established Production schd for 12 backshop operations
- Launched 39 projects
- Second wave of G/B
2003 - Key Initiatives
- Developed weekly engine and Mod induction schedule
- Implemented Engine Gate system - used on QT eng
- Establish Reset room for rapid response requirements
- 34 Six Sigma projects YTD
- 14 Repair Develop projects complete - est. $7M savings



aning T700 Engine Progra

Goal: 30% Man-hour Reduction for T700 Engine Family

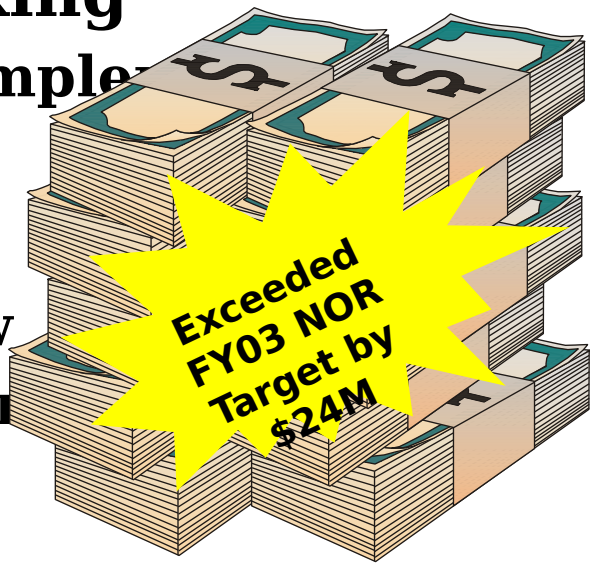
- **Lean 1st Pass Initiated**
  - ✓ **Disassembly/Pre-Shop Analysis (PSA) Phase**
    - **With Traveler Automation, project a reduction of 2 man-hours per Engine**

- **24% of CCAD's FY04 Projected Revenue**
  - ✓ **366 Engines**
  - ✓ **417 Cold Section Modules**
  - ✓ **317 Power Turbine Modules**

Engine Disassembly Kanban

CCAD Lean Path Ahead

- **Policy Deployment Session**
  - ✓ **2nd Qtr FY04 with AMCOM and CCAD Leadership**
  - ✓ **Assess first year and current path**
  - ✓ **Determine metrics for selection of future programs**
- **Lean Implementation & Tracking**
  - ✓ **Scheduling Lean Events with Simple**
  - ✓ **Tracking TAT and Man-hours**
- **Reporting Progress**
  - ✓ **AMCOM / Depot Monthly Review**
  - ✓ **AMC Monthly Lean Metric Repor**



We stand ready to support you

Leaning MR (Materiel Release)

- ✓ **POLICY (DA Ownership).**
  - Briefed Mr. Bolton on 20 Oct 03.
    - ***Short Term:*** *"Way Ahead" (Selected tasks moved up in time - TC-MR Checklist.)*
    - ***Long Term:*** *Merge MR with TC – Integrated thru Acq. Life Cycle.*
      [Conditional MR to be eliminated – Do not release until Full MR.]
  - Software IPT Established (12 Nov) – CECOM Lead
- ✓ **OVERSIGHT of MR Execution (HQ AMC Ownership).**
  - **Reporting:** Improve MRTS (Materiel Release Tracking System)
    [Collaborative Capability; Retain historical tracking.]
  - **Oversight:** Transitioning to Quarterly Reviews in conjunction with PEO/PM/MSC Reviews
- ✓ **EXECUTION of MR (MSC Ownership)**
  - Tasking memo from AMC G3 to MSC in final staffing.
  - **VSA & RIE:** Funding available -- Value Stream Analyses and Rapid Improvement Events.
  - **CECOM & AMCOM:** Will re-examine the MR execution process in light of LEAN thinking upon completion
    of the DA MR LEANing process.
  - **TACOM:**
    - ***Completed MR Lean VSA - March 03***
    - ***VSA Implemented/Incorporated into MR Process – Apr 03***
    - ***Reduced Content & Processing to 7 Documents and 6 Days***
    - ***TACOM Safety Office RIE Scheduled for Jan 04***

Army Materiel Comman

Presented by:
National Maintenance Division

Lean Value Stream Analysis Workshop

ESSENTIAL IN PEACE, INDISPENSABLE IN WAR

National Maintenance Program

- ✓ **Lean Value Stream Analysis workshop conducted**
  9-11 Dec at Fort Belvoir Sosa Center
- ✓ **Mapped "below depot" workload process, developed**
  ideas for "leaning," and laid out action plan for next
  six months
- ✓ **Participants**
  - **–National Maintenance Division**
  - **–National Logistics Qualification Office**
  - **–National Logistics Coordination Offices**
  - **–AMC G8 Office**
  - **–AMCOM**
  - **–CECOM**
  - **–TACOM**
  - **–AMC Lean Office**

DEVELOP PROCESS MAPS

Develop *PROCESS MAPS* for current, future, and

Current Process

- **Develop Plan** — 34 Steps
- **Funds Approval** — 20 Steps
- **Execute Plan** — 26 Steps
- **Pay Providers** — 4 Steps

84 Total steps

Future Process

- **Develop Plan**
- **Funds Approval**
- **Execute Plan**
- **Pay Providers**

63 Total Steps

Action Plan targets elimination of 25% of steps

Ideal Process

- **Continuous Execution**
- **IM directly to SOR**
- **Prepay SOR**

3 Total steps

Limiting Constrain

- *SOR capability*
- *Statutes/Regulation*
- *IT*

ACTION PLAN

Develop ***ACTION PLAN*** to achieve relentless continuous

	Jan 04	Feb 04	Mar 04	Apr 04	May 04	Jun 04
Rapid Improvement (RI) Events	Develop Std queries to pull data -- RI 1 Eliminate redundant work done at separate activities / realign functions and personnel-- RI 2 Identify end-state specific SORs -- RI 16	Stream line planning & CIR (IMMC work directly with SOR) -- RI 3	Eliminate plan - Work a continuous repair schedule -- RI 4	Update installation labor rates earlier -- RI 5		MSCs work directly with SORs for year end close -- RI 6
Projects (P)				Use real-time logistics & consumption data for plan development -- P 7		
Just Do Its (JDI)	Provide single source timely, reliable, automated production data -- JDI 8 Eliminate work in process/ completion edit check in LMP/BDWKLD -- JDI 9	Fund NMM as a multi-year program within constraints of AWCF -- JDI 11	Standardize WLCR process among the AMC MSCs -- JDI 12 Automate MIPR -- JDI 13 Automate WLCR -- JDI 14		Establish audit capability between SAMS & SARSS (work order # to document #) -- JDI 15	

Status of HQAMC Initiatives

Staff Element	Initiative	Status	Schedule
G3	Materiel Release	RIE prep on-going	MR Safety RIE Jan 04 at TACOM
SGS	SGS Suspense Tracking	Completed SGS & G3 RIEs	
G1	SES Hiring Process	Reduced number of PDs from 88 to 5	
Command Contracting	Contract requirements and staffing process	VSA conducted Nov 03	Plan to conduct training on preparing contract package
G3	**National Maintenance Workloading**	**VSA conducted 9-11 Dec 03**	**RIE scheduled for Jan 04 VSA**
G6	**Lean the process of staffing and publishing an AMC publication.**	**VSA prep in process**	**scheduled for 27-29 Jan 04**

VSA – Value Stream Analysis RIE – Rapid Improvement Event

Unit Funded Cost

- ✓ First month's data in
- ✓ Predictive metrics seem pretty good
- ✓ Unit Funded Cost/Savings to the customer metric ne
  - ❑ Will fix as needed before Jan submission
- ✓ Will provide interim analysis with 3 months of data

Lean Six Sigma

- ✓ Work on-going at Picatinny, JMC, ANAD, CCAD, and
- ✓ In search of executive Black Belt
- ✓ Incorporate Six Sigma into the Lean Implementatio

Way ahead…

- ✓ **Fix data and continue to track unit funded cost by program**
- ✓ **Continue to track Lean deployment metrics**
- ✓ **Lean Events scheduled for Jan:**
  - ❑ ***MR Safety Rapid Improvement Event (RIE) at TACOM***
  - ❑ ***RIE for NMD Workload Process***
  - ❑ ***G6 VSA***
- ✓ **Begin G8 initiative to Lean the budget process**
- ✓ **Integrate Lean and Six Sigma into a Process**